

WHAT IS CLAIMED IS:

1. A high energy plating process for static seals comprising:  
supporting a predetermined quantity of metallic seals at non-sealing surface  
locations with the metallic seals disposed in series on a conveyor having a predetermined  
5 processing path; and  
continuously moving the metallic seals on the conveyor in series through an  
electro-plating stage of the predetermined processing path to electro-deposit a metallic  
coating on the metallic seals using a high current density and a high chemical flow rate.
- 10 2. The process according to claim 1, further comprising  
continuously moving the metallic seals on the conveyor in series through an initial  
cleaning stage of the predetermined processing path prior to moving the metallic seals  
through the electro-plating stage.
- 15 3. The process according to claim 2, further comprising  
continuously moving the metallic seals on the conveyor in series through an initial  
rinsing stage of the predetermined processing path after moving the metallic seals through  
the cleaning stage and prior to moving the metallic seals through the electro-plating stage.
- 20 4. The process according to claim 3, further comprising  
continuously moving the metallic seals on the conveyor in series through a final  
rinsing stage of the predetermined processing path after moving the metallic seals through  
the electro-plating stage.
- 25 5. The process according to claim 4, wherein  
the continuously moving of the metallic seals on the conveyor in series through the  
electro-plating stage of the predetermined processing path includes  
continuously moving the metallic seals on the conveyor in series through an under  
plating stage of the predetermined processing path, and  
30 continuously moving the metallic seals on the conveyor in series through a top  
plating stage of the predetermined processing path.

6. The process according to claim 5, wherein  
the continuously moving of the metallic seals on the conveyor in series through the  
electro-plating stage of the predetermined processing path includes

5 continuously moving the metallic seals on the conveyor in series through an  
intermediate rinsing stage of the predetermined processing path after moving the metallic  
seals through the under plating stage and prior to moving the metallic seals through the  
top-plating stage.

10 7. The process according to claim 3, wherein  
the continuously moving of the metallic seals on the conveyor in series through the  
electro-plating stage of the predetermined processing path includes

continuously moving the metallic seals on the conveyor in series through an under  
plating stage of the predetermined processing path, and

15 continuously moving the metallic seals on the conveyor in series through a top  
plating stage of the predetermined processing path.

8. The process according to claim 7, wherein  
the continuously moving of the metallic seals on the conveyor in series through the  
20 electro-plating stage of the predetermined processing path includes

continuously moving the metallic seals on the conveyor in series through an  
intermediate rinsing stage of the predetermined processing path after moving the metallic  
seals through the under plating stage and prior to moving the metallic seals through the  
top-plating stage.

25 9. The process according to claim 1, wherein  
the continuously moving of the metallic seals on the conveyor in series through the  
electro-plating stage of the predetermined processing path includes

continuously moving the metallic seals on the conveyor in series through an under  
30 plating stage of the predetermined processing path, and

continuously moving the metallic seals on the conveyor in series through a top  
plating stage of the predetermined processing path.

10. The process according to claim 9, wherein  
the continuously moving of the metallic seals on the conveyor in series through the  
electro-plating stage of the predetermined processing path includes

5 continuously moving the metallic seals on the conveyor in series through an  
intermediate rinsing stage of the predetermined processing path after moving the metallic  
seals through the under plating stage and prior to moving the metallic seals through the  
top-plating stage.

10 11. The process according to claim 9, wherein  
the under plating stage includes at least one striking stage that is substantially  
shorter than said top plating stage.

12. The process according to claim 11, wherein  
15 said top plating stage is at least about ten times longer than said at least one  
striking stage.

13. The process according to claim 1, wherein  
the continuously moving of the metallic seals on the conveyor in series through the  
20 electro-plating stage of the predetermined processing path includes  
continuously moving the metallic seals on the conveyor in series through at least  
two different plating stages of the predetermined processing path.

14. The process according to claim 1, wherein  
25 the metallic seals are oriented vertically during the continuously moving of the  
metallic seals on the conveyor in series through the electro-plating stage of the  
predetermined processing path.

15. The process according to claim 1, wherein  
30 the process is a continuous high volume process electro-depositing the metallic  
coating on the metallic seals at a rate of at least about 5 seals per minute.

16. The process according to claim 1, wherein  
the metallic coating is a soft metallic coating.

5 17. The process according to claim 16, wherein  
the metallic coating includes at least one of tin, tin alloy, lead, gold, silver, silver  
alloy, nickel, copper and indium.

18. The process according to claim 17, wherein  
the metallic seals are constructed of one of Stainless Steel, Inconel and Waspaloy  
10 prior to electro-depositing the metallic coating during the electro-plating stage of the  
predetermined processing path.

19. The process according to claim 1, wherein  
the metallic seals are constructed of one of Stainless Steel, Inconel and Waspaloy  
15 prior to electro-depositing the metallic coating during the electro-plating stage of the  
predetermined processing path.

20. The process according to claim 1, wherein  
the high current density used during the continuously moving of the metallic seals  
20 on the conveyor in series through the electro-plating stage of the predetermined processing  
path is between about 200 ASF and about 1000 ASF during at least a portion of the  
electro-plating stage.